

Memorandum

*Flex your power!
Be energy efficient!*


To: MR. STEPHEN D. HAAS
District Branch Chief
Office of Design Alameda II

Date: January 20, 2005

Attention: George Acquaye

File: CC-04 Various
CC-24-Various
CC-80-Various
04-0A8101

From: PANCHANATHAM N. SUNDARAM
Transportation Engineer-D
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

STEVEN KAKIHARA 
Chief, Branch D
Office of Geotechnical Design-West
Geotechnical Services
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Subject: Foundation Recommendations for Sign Posts

This memorandum provides foundation recommendations for seven overhead signs at several locations on Rtes. 4, 24 and 80 in the Contra Costa County. These new sign posts are intended to replace the existing sign posts within gore areas. The new locations are close to the existing gore locations but are located in the shoulder of the freeways.

We did not perform detailed drilling and sampling investigations, but relied on:

- (a) As-Built Plans for some of the existing sign posts
- (b) Past geotechnical investigations performed at or close to the sites of new signposts and
- (c) Our site investigations that consisted of identifying rock formations along existing cuts.

Based on our investigations, the geotechnical conditions at the sign locations meet the minimum requirements for Standard Plan Foundations (July, 2004). As a result, the posts for the proposed signs may be founded on spread footings except SP-22 in Rte. 80 which may be founded either on CIDH piles or spread footings. **Table 1** attached, summarizes our foundation recommendations.

Please note that the choice of spread footings over pile foundations was dictated by the fact that at many locations boulders and rock formations may be encountered that make drilling for CIDH piles difficult and costly.

Excavation shall be in accordance with Section 19: Earthwork of the Standard Specifications. Also note that excavations to depths greater than 1.50-m (5-ft) will be subjected to Section 5-1.02A "Trench Excavation Safety Plans" of the Standard Specifications.

MR.STEPHEN D. HAAS

Attn: G. Acquaye

January 20, 2005

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Stability of excavations will be the responsibility of the contractor.

If you have any questions, please call Panch. N. Sundaram at 510-622-8821.

Attachment:

c: TPokrywka, SKakihara, PNSundaram, Daily File, Route File.

PSundaram/mm



Table 1
Recommended Types of Foundations for Relocated and New Sign Posts (Contra Costa County)

Route	kP (Approx)	Existing Sign Posts to be Replaced			New Sign Posts		Remarks	
		Sign Post ID	Post Type	Foundation Type	Sign Post ID	Post Type		Recommended Foundation Type
4	8.5	Sig. No. 4	VI	Spread Footing (Standard Design)	SP-3	VII	Spread Footing (Standard Design*)	Foundation will be in sandstone of medium rippability.
	20		No Data Available		SP-9	VII	Spread Footing (Standard Design*)	Foundation will be in fill that may contain boulders.
	20		No Data Available		SP-10	VII	Spread Footing (Standard Design*)	
24	0.8	SIGN. No. 1	VII	Spread Footing (Standard Design)	SP-12	VII	Spread Footing (Standard Design*)	Footing will be in conglomeratic sandstone of medium to hard rippability.
	1.8	SIGN No.5	II-S	Spread Footing (Standard Design)	SP-15	VII	Spread Footing (Standard Design*)	Foundation will be in conglomeratic sandstone overlying mudstone of medium rippability.
	1.6		No Data Available		SP-13	VII	Spread Footing (Standard Design*)	Foundation will be in sandstone with basaltic dikes - somewhat difficult to rip.
	2		Not Applicable		SP-13A	VII	Spreading Footing (Standard Design*)	Foundation will be in jointed and banded sandstone that would be difficult to rip.
80	17		No Data Available		SP-22	VII	Spread Footing or CIDH Pile (Standard Design*)	Footings or Pile will be essentially in fill made up of medium dense silty sand with occasional gravel.

* Standard Plans of July, 2004.

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To: MR. STEPHEN D. HAAS
District Branch Chief
Office of Design Alameda II

Date: January 25, 2005

Attention: George Acquaye

File: CC-04 Various
CC-24-Various
CC-80-Various
04-0A8101

From: PANCHANATHAM N. SUNDARAM *Py*
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STEVEN KAKIHARA *SK*
Chief, Branch D
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Subject: Review of PSR/PR Report

We have reviewed the Supplemental Combined Project Study Report/Project Report. We have only one comment that relates to the geotechnical engineering field:

In the **Preliminary Environmental Analysis Report** (Attachment F), the last sentence of the second paragraph under Project Description says, "No trenching, tree removal or tree pruning is expected at this time."

Our comment is that for the spread footing, the depth of excavation could be of the order of 2.8 meters (9-ft) with areal dimensions as large as 4-m x 5.5-m (13-ft x 18-ft).

Similarly, for CIDH Pier Foundation, the diameter could be 1.5-m (5-ft) with depth of the order of 7-m (23-ft) (**Ref: Standard Plans, July 2004**). Thus, excavation volumes will be substantial.

Please call me if you have any questions at 510-622-8821 or Steve Kakihara, Branch Chief at (510) 286-4752.

c: TPokrywka, SKakihara, PNSundaram, Daily File, Route File.

PSundaram/mm

